What is claimed is:

1. A system for monitoring foreign matter comprising:

a manufacture line having plural process processing apparatuses;

a production management system which manages the processing of workpieces in the manufacture line;

foreign matter monitors mounted as on-machine equipment in said plural process processing apparatuses, said foreign matter monitors each having:

an optical head containing a detecting optical system for irradiating a workpiece with light and a detecting optical system for receiving reflected and scattered light from the workpiece and converting the received light to a detection image signal; and

an A/D converter for converting the detection image signal, which is obtained through conversion by the detecting optical system, to a detection digital image signal; and

a base system having:

a control unit for acquiring control information including information identifying each foreign matter monitor, process processing information and workpiece information, the process processing information and the workpiece information being acquired from the

production management system;

a buffer memory for storing said detection digital image signal, which is acquired from each foreign matter monitor, in association with the corresponding foreign matter monitor;

a database storing inspection recipes each associated with a foreign matter monitor; and

an image signal processing unit used for, based on a detection digital image signal associated with a foreign matter monitor and acquired from the buffer memory, judging whether foreign matter and other defects are present on a workpiece according to an inspection recipe which is selected for the corresponding foreign matter monitor based on control information from the control unit.

2. A system for monitoring foreign matter according to Claim 1, wherein each of said plural main process processing apparatuses comprises: a process room to process workpieces; a cassette room where a cassette containing a workpiece is carried in and out; and a platform providing clean ambience to the workpiece for transportation between the process room and the cassette room.

3. A system for monitoring foreign matter according to Claim 2, wherein an optical head for the foreign matter monitor is set up in said platform.

4. A system for monitoring foreign matter according to Claim 1, wherein each of said plural main process

processing apparatuses comprises: a process room to process workpieces; a cassette room where a cassette containing a workpiece is carried in and out; a platform providing clean ambience to the workpiece for transportation between the process room and the cassette room; and a small clean environment room.

5. A system for monitoring foreign matter according to Claim 4, wherein an optical head for the foreign matter monitor is set up in said small clean environment room.

6. A system for monitoring foreign matter according to Claim 2, wherein said clean ambience is kept clean to class 20 or better.

7. A system for monitoring foreign matter according to Claim 4, wherein said clean ambience is kept clean to class 20 or better.

8. A system for monitoring foreign matter according to Claim 1, wherein said image signal processing unit in said base system is configured so as to prepare a defect distribution map over a workpiece for each foreign matter monitor.

9. A system for monitoring foreign matter according to Claim 1, wherein said base system further comprises a data analysis processing unit which performs failure analysis by comparing the defect occurrence situation of a workpiece, judged by said image signal processing unit, with failure analysis reference data.

10. A system for monitoring foreign matter according to Claim 9, wherein results of failure analysis by said data analysis processing unit are displayed on an input/output terminal.

11. A system for monitoring foreign matter according to Claim 1, wherein the control unit in said base system has a capability of preparing inspection recipes associated respectively with foreign matter monitors.

12. A process processing apparatus comprising:

a platform which is evacuated and provided with a transport robot set up therein;

plural process chambers each of which is placed around the platform and has a gate which is opened and closed for various processing when a workpiece is carried in or out through the gate by the transportation robot;

a relay room which is connected to the platform and has a gate which is opened and closed;

a cassette room in which plural cassette each accommodating plural workpieces are placed; and

a small clean environment room which provides class 20 or better clean ambience for connection between the relay room and the cassette room and has a foreign matter monitoring optical head, the head including a detecting optical system for irradiating a workpiece with light and a detecting optical system for receiving reflected and scattered light from the workpiece and converting the

received light to a detection image signal.

13. A system for monitoring foreign matter comprising:

a manufacture line having plural process processing apparatuses including a process processing apparatus according to Claim 12;

a production management system which manages the processing of workpieces in the manufacture line;

foreign matter monitors each of which is mounted as on-machine equipment and has an A/D converter for converting an detection image signal, which is obtained through conversion by the detecting optical system of an optical head set up in the small clean environment room for the process processing apparatus, to a detection digital image signal; and

a base system having:

a control unit for acquiring control information including information identifying each foreign matter monitor, process processing information and workpiece information, the process processing information and the workpiece information being acquired from the production management system;

a buffer memory for storing said detection digital image signal, which is acquired from each foreign matter monitor, in association with the corresponding foreign matter monitor;

a database storing inspection recipes each associated with a foreign matter monitor; and

an image signal processing unit used for, based on a detection digital image signal associated with a foreign matter monitor and acquired from the buffer memory, judging whether foreign matter and other defects are present on a workpiece according to an inspection recipe which is selected for the corresponding foreign matter monitor based on control information from the control unit.

14. A process processing apparatus group comprising:

plural process processing apparatuses each having a cassette room in which a cassette accommodating plural workpieces is placed, a process room to process workpieces carried in and out via a gate which is opened and closed, and a small clean environment room which has a transport robot carrying a workpiece between the cassette room and the process room and is kept clean at almost atmospheric pressure,

wherein the plural process processing apparatuses are placed around the travel path of an automated guided vehicle; a foreign matter monitoring optical head containing a detecting optical system for irradiating a workpiece with light and a detecting optical system for receiving reflected and scattered light from the workpiece and converting the received light to a detection image signal is set up in each small clean environment room for a

desired process processing apparatus; and

an automated guided vehicle is used to transfer a cassette into and from the cassette room of each process processing apparatus.

15. A system for monitoring foreign matter comprising:

a manufacture line comprising a process processing apparatus group according to Claim 14;

a production management system which manages the processing of workpieces in the manufacture line;

foreign matter monitors each of which is mounted as on-machine equipment and has an A/D converter for converting an detection image signal, which is obtained through conversion by the detecting optical system of an optical head, to a detection digital image signal; and

a base system having:

a control unit for acquiring control information including information identifying each foreign matter monitor, process processing information and workpiece information, the process processing information and the workpiece information being acquired from the production management system;

a buffer memory for storing said detection digital image signal, which is acquired from each foreign matter monitor, in association with the corresponding foreign matter monitor;

a database storing inspection recipes each associated with a foreign matter monitor; and

an image signal processing unit used for, based on a detection digital image signal associated with a foreign matter monitor and acquired from the buffer memory, judging whether foreign matter and other defects are present on a workpiece according to an inspection recipe which is selected for the corresponding foreign matter monitor based on control information from the control unit.

16. A process processing apparatus according to Claim 12, wherein said small clean environment room is internally kept clean to class 20 or better.

17. A process processing apparatus according to Claim 14, wherein said small clean environment room is internally kept clean to class 20 or better.

18. A system for monitoring foreign matter according to Claim 1, wherein said image signal processing unit in said base system is configured so as to determine a defect distribution over a wafer for each foreign matter monitor.

19. A system for monitoring foreign matter according to Claim 13, wherein said image signal processing unit in said base system is configured so as to determine a defect distribution over a wafer for each foreign matter monitor.

20. A system for monitoring foreign matter according to Claim 15, wherein said image signal processing unit in said base system is configured so as to determine a defect

distribution over a wafer for each foreign matter monitor.

21. A system for monitoring foreign matter according to Claim 13, wherein said base system further comprises a data analysis processing unit which performs failure analysis by comparing the defect occurrence situation of a workpiece, judged by said image signal processing unit, with failure analysis reference data.

22. A system for monitoring foreign matter according to Claim 15, wherein said base system further comprises a data analysis processing unit which performs failure analysis by comparing the defect occurrence situation of a workpiece, judged by said image signal processing unit, with failure analysis reference data.

23. A system for monitoring foreign matter according to Claim 21, wherein results of failure analysis by said data analysis processing unit are displayed on an input/output terminal.

24. A system for monitoring foreign matter according to Claim 1, wherein the control unit in said base system has a capability of preparing inspection recipes associated respectively with foreign matter monitors.

25. A system for monitoring foreign matter according to Claim 13, wherein the control unit in said base system has a capability of preparing inspection recipes associated respectively with foreign matter monitors.

26. A system for monitoring foreign matter according

to Claim 15, wherein the control unit in said base system has a capability of preparing inspection recipes associated respectively with foreign matter monitors.

27. A method of electronic commerce, wherein the inspection equipment manufacturer which manufactures foreign matter monitors using a foreign matter monitoring system according to Claim 1, demands payment via a communication network to a chip device manufacturer for an economic effect by an increased yield which is brought about as a result of anti-failure countermeasures taken to an abnormal process processing apparatus located based on defect occurrence information acquired from the base system.

28. A method of electronic commerce, wherein the inspection equipment manufacturer which manufactures foreign matter monitors using a foreign matter monitoring system according to Claim 13, demands payment via a communication network to a chip device manufacturer for an economic effect by an increased yield which is brought about as a result of anti-failure countermeasures taken to an abnormal process processing apparatus located based on defect occurrence information acquired from the base system.

29. A method of electronic commerce, wherein the inspection equipment manufacturer which manufactures foreign matter monitors using a foreign matter monitoring system according to Claim 15, demands payment via a communication network to a chip device manufacturer for an

economic effect by an increased yield which is brought about as a result of anti-failure countermeasures taken to an abnormal process processing apparatus located based on defect occurrence information acquired from the base system.